SHARP SERVICE MANUAL

CODE : 00ZEL2630SM/E

MODEL EL-2630

STANDARD FUNCTION	12 digits	1 M

DISPLAY SECTION

123,456,789,012. M E

ELEMENT: Display tube	PARTS NAME: 13-BT-70ZB
NUMERAL: 12 digits	SYMBOL: 1 digit(s)

8 (3.6 × 7.8 mm)

M E

LSI

Name : LI24741	
Type : Dual in line	
Pin : 52pins	

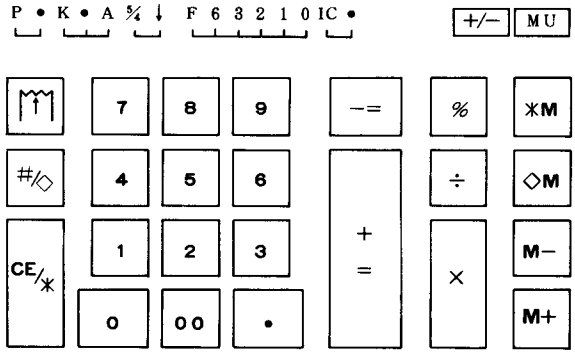
POWER SUPPLY	AC: ○	DC: ×	

- BATTERY TYPE

AC only

- OPERATION TIME

KEY LAYOUT



KEY SYSTEM: QS-2 key

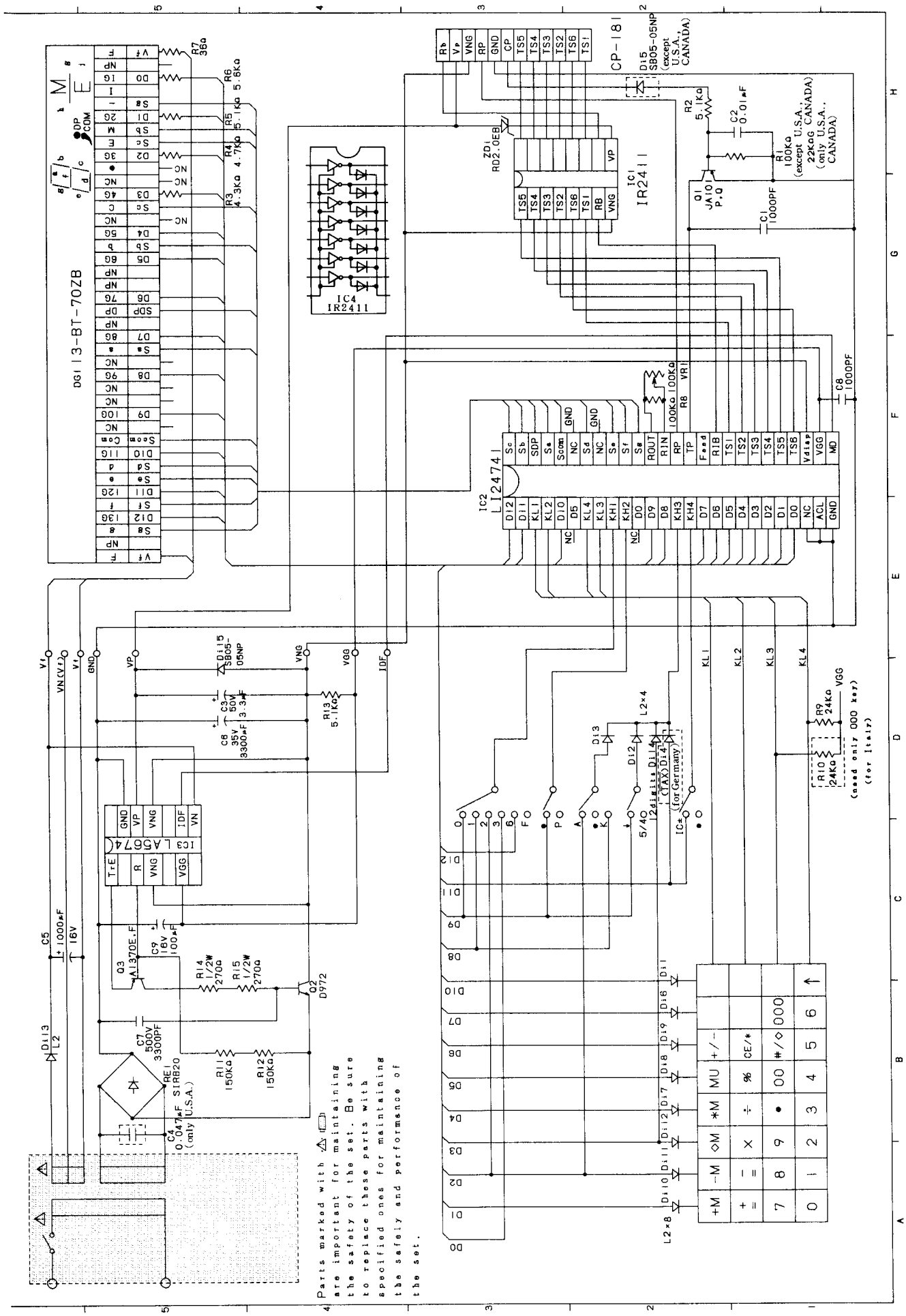
AC ADAPTOR	
RECHARGEABLE BATTERY	
POWER CONSUMPTION	17.7 W
AUTO POWER OFF TIME	minutes
MEMORY PROTELT	
DIMENSIONS(mm)	220 (W) 296 (D) 79.5 (H)
CALCULATIONS	

Four arithmetic calculations, constant multiplication and division, power calculation, add-on/discount calculation, repeat addition and substraction, adding mode, reciprocal calculation, item count calculation, make-up calculation, etc.

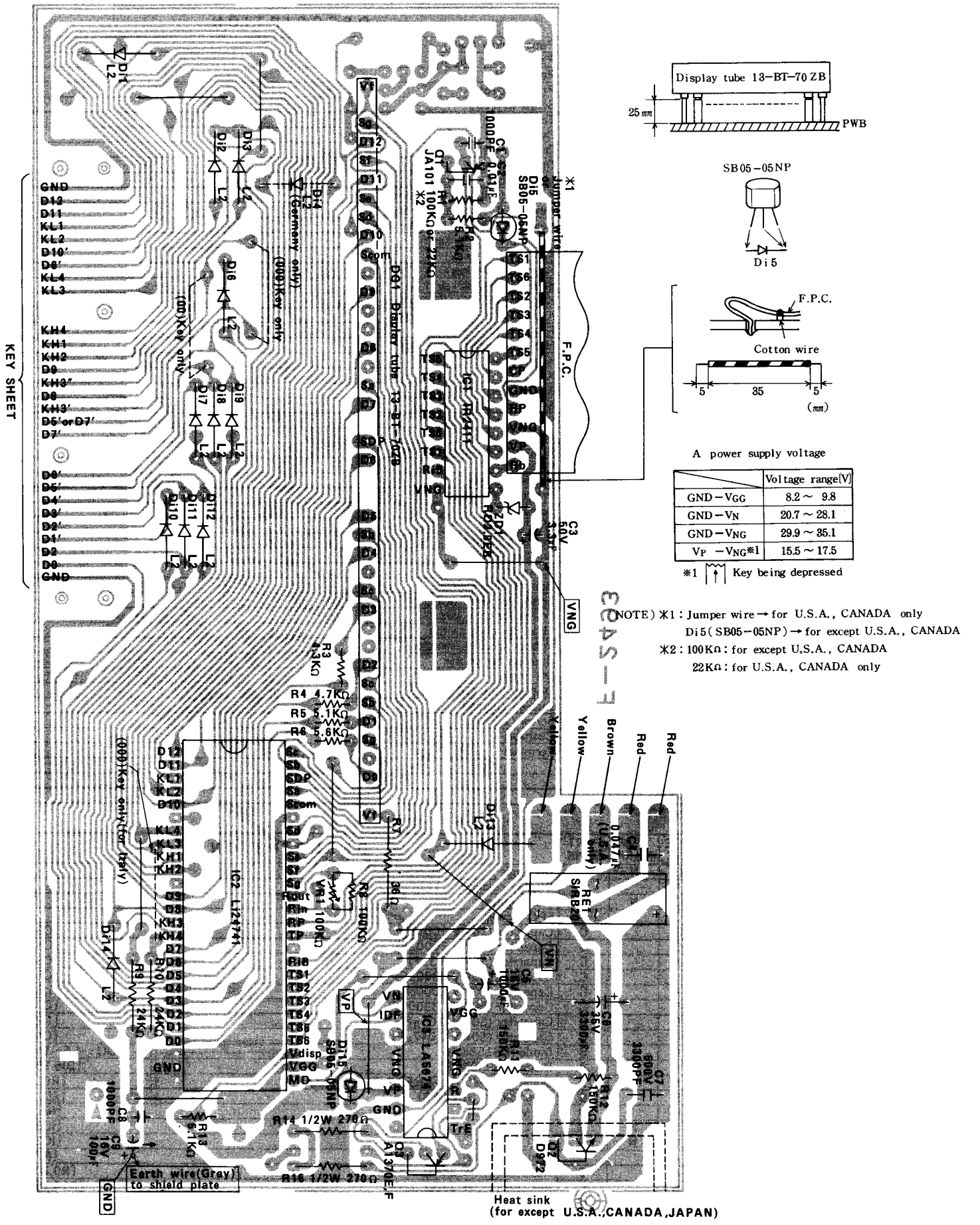
PRINTER SECTION

MODEL NAME	CP-181 (KI-0B1036CCZZ)
PRINTING SYSTEM	Flying method
PRINTING CAPACITY	18 digits
CHARACTER DIMENSION	1.6 (W) 2.8 (H) mm
INPUT BUFFER	stages
PRINTING SPEED	Approx. 3.0 lines/sec.
PAPER FEED SPEED	Approx. 3.0 lines/sec.
PAPER RELEASE MECHANISM	Yes
INK RIBBON	2 colors system (Red, Black)
INK ROLLER	
PAPER	Plain paper
PAPER SIZE (Roll paper)	58^{+0}_{-1} mm(W), 80 mm in diameter (max.) DPAPR1004CSZZ . . . 5 rolls/pack

1. CIRCUIT DIAGRAM



2. PWB LAYOUT



A power supply voltage

	Voltage range[V]
GND − V_{GG}	8.2 ~ 9.8
GND − V_N	20.7 ~ 28.1
GND − V_{NG}	29.9 ~ 35.1
V_P − V_{NG} ※1	15.5 ~ 17.5

※1 Key being depressed

(NOTE) ※1 : Jumper wire → for U.S.A., CANADA only
Di5 (SB05-05NP) → for except U.S.A., CANADA
※2 : 100KΩ : for except U.S.A., CANADA
22KΩ : for U.S.A., CANADA only

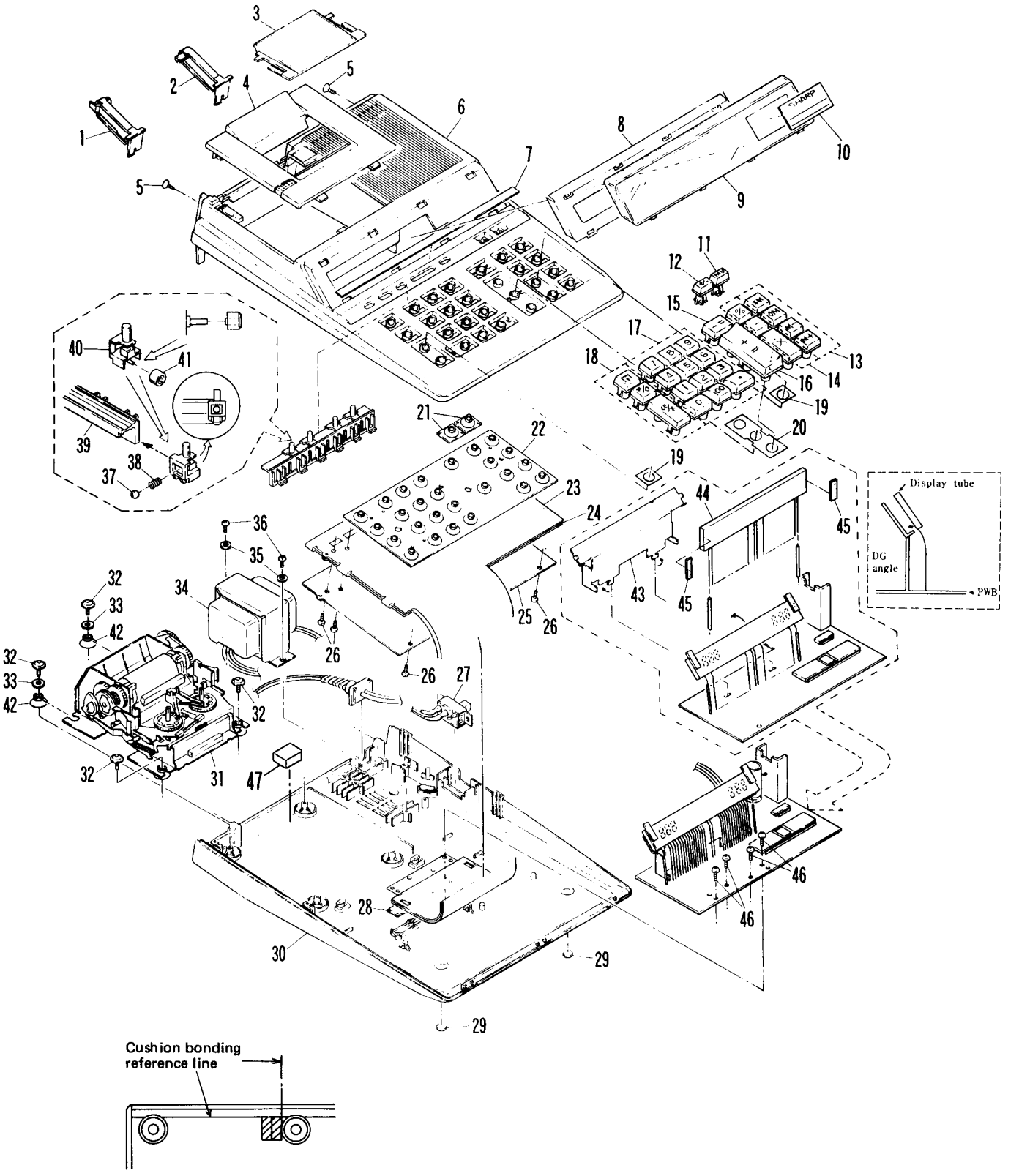
3. PARTS LIST & GUIDE

1 Exteriors

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LHLDZ1175CCL8	AB		C	Paper holder (Left)
2	LHLDZ1175CCR8	AB		C	Paper holder (Right)
3	PCUT-1030CC01	AD		D	Paper cutter
4	GCOVA1431CC03	AE	N	D	Printer cover
5	XUSSF30P10000	AA		C	Screw (3×10)
6	GCABB2899CC03	AP	N	D	Top cabinet
7	TLABB2453CC01	AC	N	C	Dec.panel
8	PSLDP1534CC01	AD	N	C	Display mask
9	PFiLW1567CCZZ	AE	N	C	Display filter
10	HPNLH1061CC01	AB	N	D	Model label
11	JKNBZ1961CC05	AB	N	C	Key top ((MU)key and lever)
12	JKNBZ1961CC06	AB	N	C	Key top ((±)key and lever)
13	CKNBZ1028CCBB	AE		C	Key top (*M,◇M,M−,M+ keys)
14	CKNBZ1027CCCC	AD	N	C	Key top (×,÷,% keys)
15	JKNBZ1958CC03	AC	N	C	Key top (− = key)
16	JKNBZ1959CC03	AE	N	C	Key top (+ = key)
17	CKNBZ1037CCBB	AH	N	E	Key top unit (12keys)
18	CKNBZ1026CCCC	AD	N	C	Key top (PF,#/◇,CE/* keys)
19	PFLT-1055CCZZ	AA		C	Key felt (for (×)·(CE/*)key)
20	PFLT-1054CCZZ	AA		C	Key felt (for (+=)key)
21	PGUMM1458CCZZ	AA		B	Half key rubber (for 1 key)
22	PGUMM1469CCZZ	AH		B	Key rubber
23	PZETL347BCCMC	AK	N	B	Key sheet
24	PZETL1478CC01	AC		C	Key spacer
25	LFiX-1157CCZZ	AD		C	Key fixing plate
26	XUBSD30P08000	AA		C	Screw (3×8)
27	QSW-S1247CCZZ	AE		B	Slide switch
28	PGUMS1287CCZZ	AB		B	Cushion for fixing key sheet
29	GLEGP1009CCZZ	AA		C	Rubber foot
30	GCABA2898CC03	AM	N	D	Bottom cabinet
31	Ki-OB1036CCZZ	BM	N	E	Printer (CP-181)
32	LX-BZ1144CCZZ	AA		C	Screw
33	XWHSD30-08100	AA		C	Washer (M3)
34	RTRNP1821CCZZ	AT		B	Power transformer (120V)
35	XWHSD40-08100	AA		C	Washer (M4)
36	XUPSD40P10000	AA		C	Screw (4×10)
37	NBALS1001CCZZ	AA		C	Ball for slide switch
38	MSPRC1200CCZZ	AA		C	Spring for slide switch
39	LFRM-1183CC02	AC	N	C	Frame for slide switch
40	MSLiP1023CC02	AB		C	Slider for slide switch
41	PGUMR1288CCZZ	AB		C	Rubber for slide switch
42	00CN7064-02//	AC		C	Cushion for printer
43	LANGK1610CCZZ	AD	N	C	DG angle
44	VVK13BT70ZB-1	AW	N	B	Display tube (13BT70ZB)
45	PHOG-1060CCZZ	AA		C	Display cushion
46	XUBSD26P06000	AA		C	Screw (2.6×6)
47	PSPAG1307CCZZ	AA	N	C	Cushion
101	QTANP1094CCZZ	AA		C	Terminal

2 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LANGK1610CCZZ	AD	N	C	DG angle
2	PHOG-1060CCZZ	AA		C	Display cushion
3	PSLDC1549CCZZ	AC	N	C	Shield plate
4	QCNW-1347CCZZ	AC	N	C	FPC (6pin)
5	VCEAGU1CW107M	AB		C	Capacitor (16WV 100μF) [C9]
6	VCEAGU1CW108M	AD		C	Capacitor (16WV 1000μF) [C5]
7	VCEAGU1HW335M	AA		C	Capacitor (50WV 3.3μF) [C3]
8	VCEAGU1VW338M	AH		C	Capacitor (35WV 3300μF) [C6]
9	VCKYPU1HB102K	AA		C	Capacitor (50WV 1000pF) [C1,8]
10	VCKYPU2HB332K	AB		C	Capacitor (500WV 3300PF) [C7]
11	VCQYKU1HM103K	AB		C	Capacitor (50WV 0.01μF) [C2]
12	VCQYKU1HM473M	AB		C	Capacitor (50WV 0.047μF) [C4]
13	VHDDS1588L2-1	AB		B	Diode (DS1588L2) [DI1~4,6~14]
14	VHDSB0505NP-1	AA		B	Diode (SB0505NP) [DI5,15]
15	VHDSiRB207//-1	AF		B	Diode (SIRB20)407 (CE372/373,C-922) [RE1]
16	VHERD2.0EB/-1	AB		B	Zener diode (RD2.0EB) [ZD1]
17	VHiM54530P/-1	AH		B	IC (M54530P) [IC1]
18	VHiLA5674//-1	AL	N	B	IC (LA5674) [IC3]
19	VHiLi24741/-1	AV	N	B	IC (LI24741) [IC2]
20	VRD-HT2EY360J	AA		C	Resistor (1/4W 36Ω ±5%) [R7]
21	VRD-RB2EY243J	AA		C	Resistor (1/4W 24KΩ ±5%) [R9,10]
22	VRD-ST2HY271J	AB		C	Resistor (1/2W 270Ω ±5%) [R14,15]
23	VRD-RC2EY104J	AA		C	Resistor (1/4W 100KΩ ±5%) [R8]
24	VRD-RC2EY154J	AA	N	C	Resistor (1/4W 150KΩ ±5%) [R11,12]
25	VRD-RC2EY223G	AA		C	Resistor (1/4W 22KΩ ±2%) [R1]


Display tube
DG
angle
PWB
Cushion bonding
reference line

2 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
26	VRD-RC2EY432J	AA		C	Resistor (1/4W 4.3KΩ ±5%) [R3]
27	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%) [R4]
28	VRD-RC2EY512J	AA	N	C	Resistor (1/4W 5.1KΩ ±5%) [R2,5,13]
29	VRD-RC2EY562J	AA		C	Resistor (1/4W 5.6KΩ ±5%) [R6]
30	VSJA101-P//QC	AB		B	Transistor (JA101-P//QC) [Q1]
31	VS2SA1370-EFC	AA		B	Transistor (2SA1370-EFC) [Q3,6]
32	VS2SD972-//-1	AF		B	Transistor (2SD972) [Q2]
33	RVR-B0008PCZZ	AD		B	Variable resistor (100KΩ) [VR1]
34	VVK13BT70ZB-1	AW	N	B	Display tube (13BT70ZB)

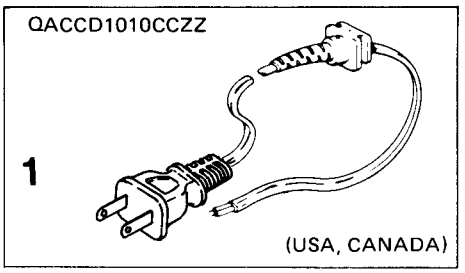
3 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	TINSE4740CCZZ	AG	N	D	Instruction book (SEL)
2	UBNDA1008CCZZ	AA		C	AC cord band
3	URBNT1007CCZZ	AG		S	Ink ribbon
4	SPAKA142BCCZZ	AG	N	D	Packing cushion for set
5	SPAKC306BCCZZ	AM	N	D	Packing case
6	SPAKA547BCCZZ	AC	N	D	Packing cushion for key
7	DPAPR1004CSZZ	AS		S	Roll paper (5rolls/pack)
8	LHLDZ1175CCL8	AB		C	Paper holder (Left)
9	LHLDZ1175CCR8	AB		C	Paper holder (Right)

AC CORD

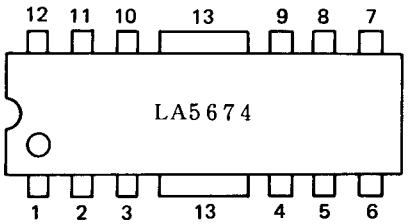
	Voltage (V)	Type of plug	Country
USA	120	Flat 2-pin	USA

NO.	PARTS CODE	PRICE RANK	Type of Lead		DESCRIPTION	MODEL NAME
			2 LEAD	3 LEAD		EL2630
1	QACCD1010CCZZ	AH	○		AC cord USA	○



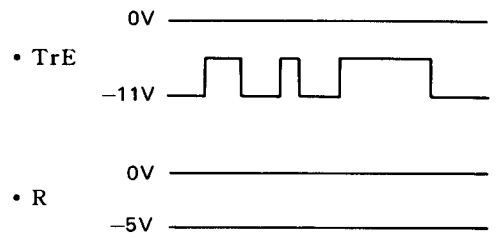
4. POWER SUPPLY IC (LA5674)

Printer motor brake incorporated power supply IC



Pin No.	Signal name	In/Out	Signal description
1	TrE	Out	VNG control signal
2	TrB	–	N.C.
3	R	Out	VNG control signal
4	HS	In	Detect level signal
5	VGG	Out	CPU power supply (–9V during display)
6	F4	In	Dispaly voltage control signal (–32V)
7	VN	Out	Display power supply (H: Display cut, L: Display)
8	iDF	In	Printer control signal
9	VCN	Out	Converter voltage select signal (–3V during printing)
10	VP	Out	Printer motor power output (+16.5V)
11	VPC	In	VP voltage adjusting pin
12	VNG	–	Display/printer reference voltage

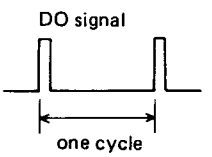
On-display signal waveform



4-1. LIS clock frequency adjustment

- The following adjustment is required after replacement of the CPU.
  Clock frequency can be adjusted by varying the frequency of the DO singal (sign digit grid signal) using the potentiometer VR1.
  The DO signal frequency can be known by measuring the GND to DO signal lines using the frequency counter.

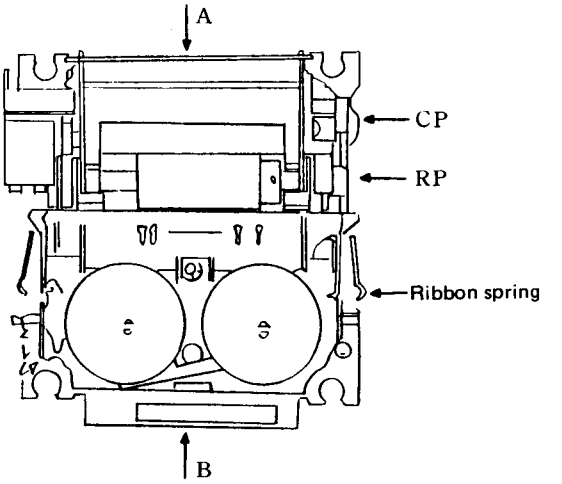
Test pin	Frequency range [ms]	Applicable model
GND-DO	10.10 ~ 10.16	EL-1630



Adjustment must be done after leaving the unit in the room temperature of 10 to 30°C for 30 minutes.

5. Service precautions

5-1. Printer handling cautions



- As components are exposed for the printer, grasp the the areas A and B for handling the printer. Hold the area other than A and B, it may result in deformation, maladjustment, and damage. (Special care must be exerted to avoid cracking the printer PWB).
- Never touch the ribbon spring, areas CP and RP. When installing the ink ribbon do not add an extraordinary stress to the ribbon spring.

5-2. Installing the shield plate

1) Peel away the double tack tape on the back side of the shield plate and bond it on the bottom cabinet (Fig. 1).
* When installing shield plate, determine the location using the square hole of the shield plate and the rib of the bottom cabinet rib.
2) Fold the soldered portion of the shield plate into two (Fig. 2).
3) Place the operation PWB over the shield plate, and solder the gray earth wire (See the PWB layout chart) to the soldered part of the shield plate (Fig. 2).
4) Fasten the operation PWB on the bottom cabinet using the screw.

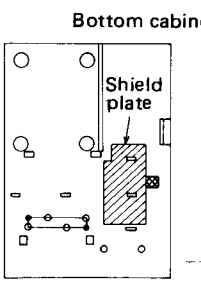


Fig. 1

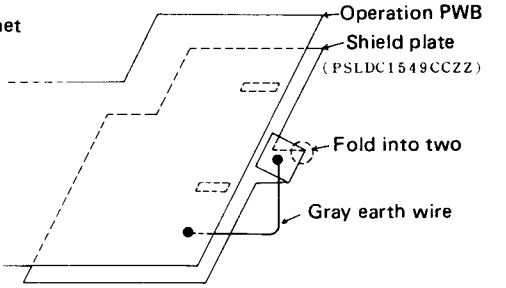
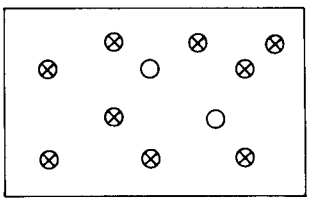
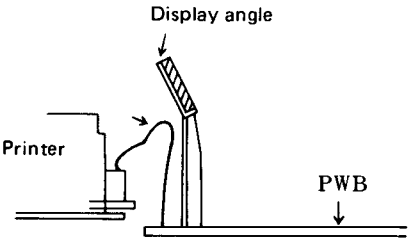


Fig. 2

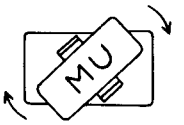
5-3. Fastening the key holding plate with screws (nine)



5-4. The printer F.P.C. must be moved towards the display angle side before the cabinet is installed.

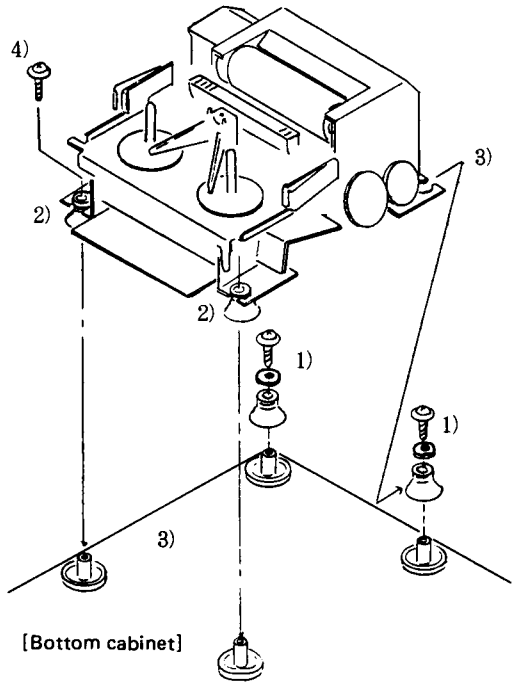


5-5. The [+/–] and [MU] keys must be inserted askew and rotated.



5-6. Installing the printer

1) Insert a shock absorbing rubber onto the bolt and fasten it with the footing.
2) Install a shock absorbing rubber onto the cut in the printer.
3) Insert the footing prepared in 1) into the slit of the bottom cabinet and fasten it with the screw. This has to be done at two locations of the rear part of the bottom cabinet.
4) For two footings on the front, insert the footing into the rubber and fasten it with the screw. This has to be done at two locations of the front part of the bottom cabinet.



SHARP CORPORATION
Information Systems Group
Quality & Reliability Control Center
Yamatokoriyama, Nara 639-11, Japan
1986 August Printed in Japan Ⓢ